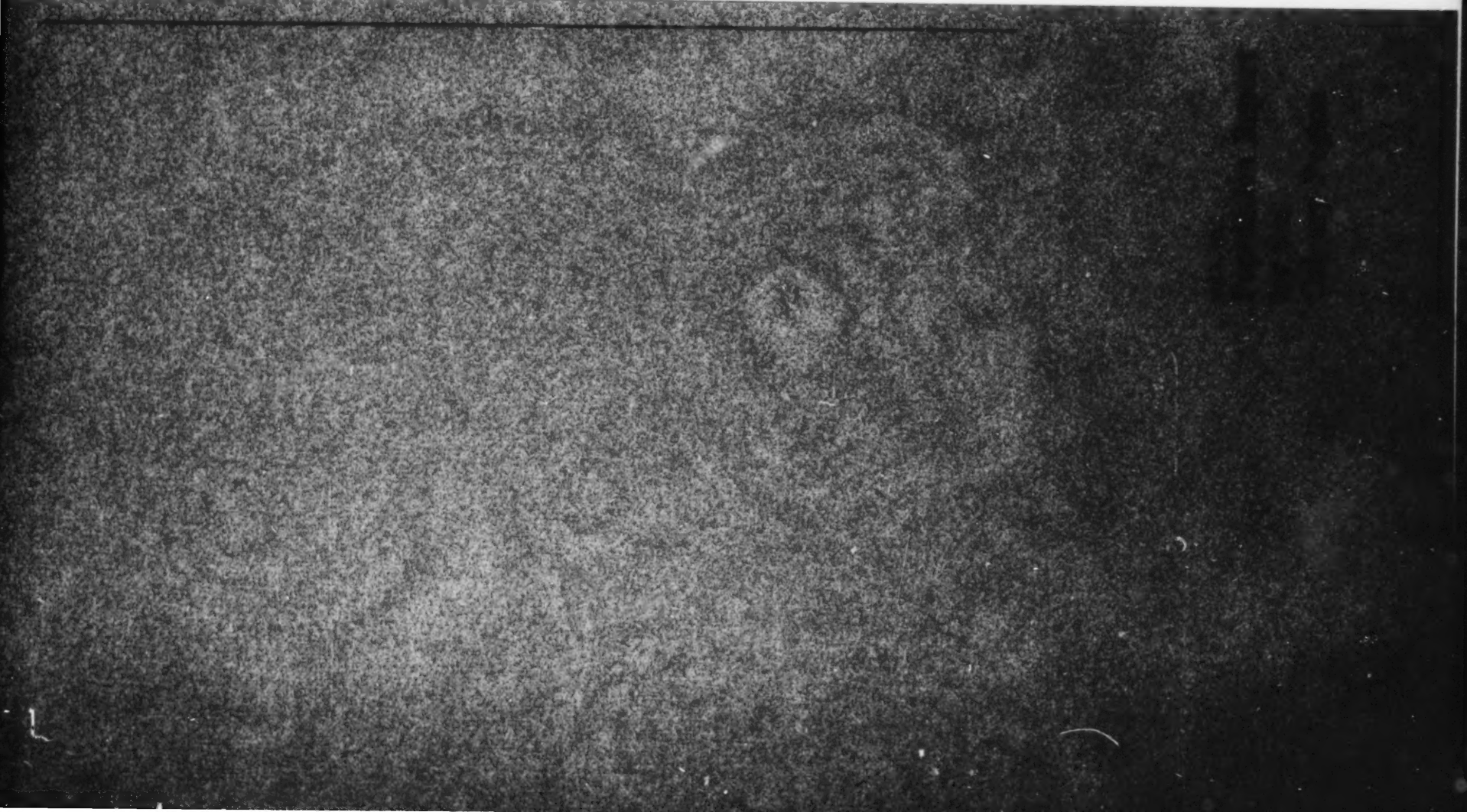
PROSPECT

calgary regional planning commission



Highlights

- for all of the municipalities except Canmore the best fit projections between 1986 and 1991 resulted from assumptions of low to average migration.
- the best fit projection for Canmore assumes high migration.
- Calgary's projections are adjusted upwards so that actual growth falls in the range of projections resulting from an assumption of average migration.
- growth rates in the region's municipalities are relatively healthy despite national economic recession.
- the projected age structure for Calgary is relatively accurate, however, the projected age structure for the other municipalities require adjustment.
- the Alberta age distribution for in-migrants was inaccurate for municipalities surrounding Calgary, therefore a new distribution for in-migrants will be estimated for a new set of projections. The major changes will include a higher proportion of 25-34 and 35-44 year old in-migrants and a lower proportion of 20-24 year old in-migrants.
- for these municipalities the number of 20-24 year olds was significantly over projected and the number of 25-34 and 35-44 year olds was under projected.
- the number of individuals in the 65+ age category was also under projected for Airdrie, Cochrane, High River, and Strathmore in 1991.

PROSPECT

Population Report for the Calgary Region

prepared by the
Calgary Regional Planning Commission
December 1991

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on this report, contact:
Kathy Beatson, 287-2472

92-07306/

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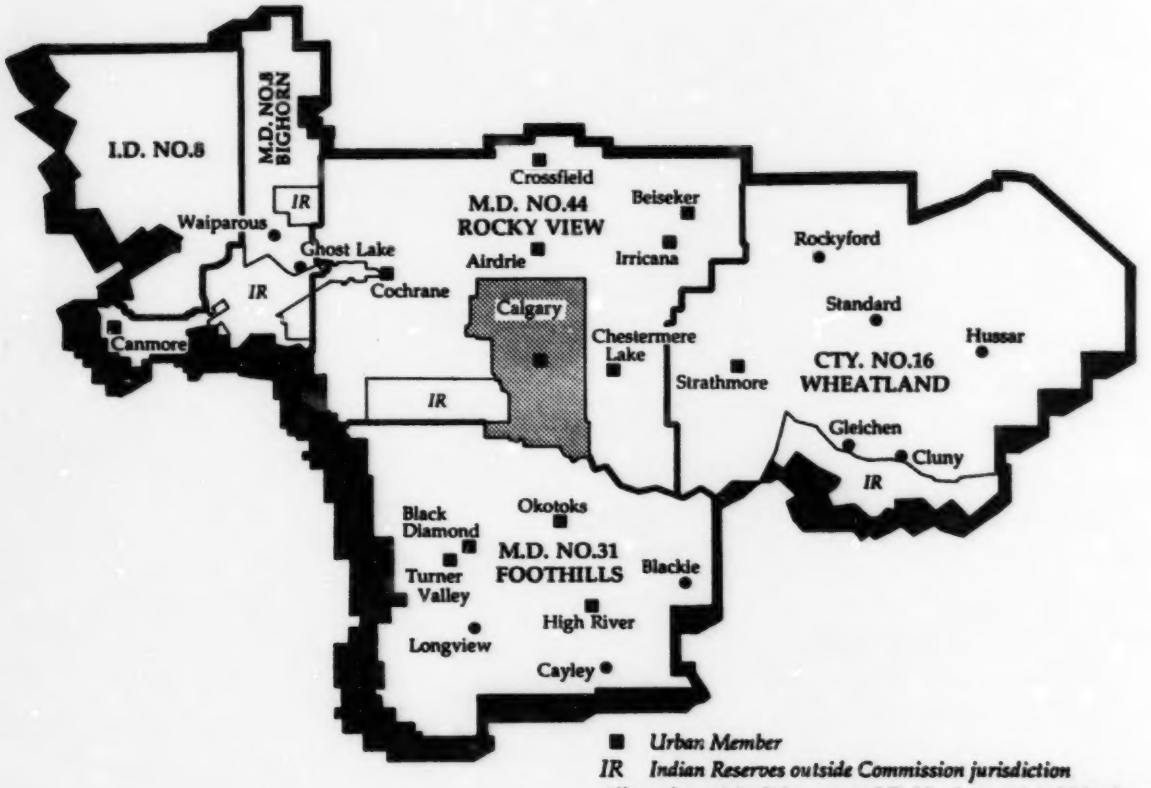
An Introduction

This is the third in a series of Prospect reports addressing population growth for municipalities in the Calgary Region. The first population report, presented in 1989, contained projections for many regional municipalities. The following pages provide further information which can be used to calibrate and thus assist readers in making the best use of the 1989 projections.

The first section of this report is similar to the monitoring section presented in the Prospect 1991 report. In the 1991 report, high, medium and low projections were compared to actual population increases in the region's seven largest urban centres and four rural municipalities as shown on Map 1. The intent was to determine which projection most accurately approximates recent growth. This report extends the time frame of the comparison by one more year by utilizing 1991 results from the municipal censuses conducted under CRPC's census program. Census figures were not available for the M.D. of Rockyview and the County of Wheatland. The 1993 population report will include a review of all of the projections using 1991 Federal census data.

The second section in this report compares projected age structures for 1991 to actual age structures in 1991 using 1991 municipal census data. This comparison provides additional information on which to base assumptions about the age of in-migrants. The current projections utilize an age distribution estimated by the Alberta Bureau of Statistics for migrants to Alberta between approximately 1973 and 1988.

MAP 1
CALGARY REGION



Comparisons Between Actual and Projected Growth

In 1989 population projections for the period 1986 to 2011 were prepared for each of the region's larger urban centres and rural municipalities shown on Map 1. These projections and their assumptions are described in Appendix A.

In this section actual growth between 1986-1991 is compared to projected growth between 1986-1991. This comparison indicates which of the projections best approximates actual population growth over the five year period. This projection is referred to as the "best fit" projection in this discussion. It is important to note that the "best fit" projection over a five year period may not reflect average long term growth. For example, growth rates were high in the late 1970s compared to the early 1980s. Fluctuating growth rates largely result from changing economic conditions.

The graphs on pages 7 to 16 illustrate actual population growth and the "best fit" projection, along with high and low projections to provide context. Municipal census results for 1991 were not available for the M.D. of Bighorn and the County of Wheatland.

Projections for the City of Calgary have been adjusted to reflect actual growth which has fallen outside of the range of projections presented in the 1989 report. The migration coefficient for the first five year period was adjusted to equal the figure used for the remaining five year periods.

A review of census results for 1991 indicates that the best fit projection for 7 of the 9 municipalities has not changed since the last report in this series. For example, low migration projections best approximate the five year growth pattern in Airdrie, Okotoks, and Strathmore.

Actual growth in Cochrane falls between average and low migration projections. This may indicate that a new projection falling just below the current average projection is required. For this year's report the best fit projection for Cochrane is classified as one assuming low migration.

The best fit projections for the M.D. of Bighorn and the County of Wheatland are still projections that assume no migration. However, it is important to note that the last census figures for these municipalities were for 1988 and 1989 respectively. Therefore, recent change is not reflected in this analysis.

Average migration projections remain the best fit projections for Calgary and High River, while a high migration projection best approximates population growth in Canmore. Canmore's relatively high growth rate decreased from 10.2% in 1989-90 to 7.4% in 1990-91. However, Canmore's recent annexation of lands from the M.D. of Bighorn and proposed developments in the Bow Corridor may lead to relatively high growth rates in the near future.

The exception to this pattern occurs for the M.D. of Foothills where the best fit projection changed from a low to an average migration projection. The growth rate has increased between 1988 and 1991. Population growth over the last three years totaled 1,003 people which resulted in an estimated average annual growth rate of 3.5%, compared to an average annual growth rate of 0.2% between 1986 and 1988.

TABLE 1
Calculated Average Annual Growth Rates 1986-1991

	86-87	87-88	88-89	89-90	90-91	Average 1986-1991
Airdrie	2.7	2.7*	4.3	4.2	3.3	3.4
Calgary	1.8	1.5	2.1	3.2	2.3	2.2
Canmore	3.4	2.7	9.4	10.2	7.4	6.6
Cochrane	3.1	2.4	2.4*	7.9	6.1	4.4
High River	1.4	1.4*	1.4*	8.0	8.6	4.2
Okotoks	5.7	2.6	6.2	6.0	3.9	4.9
Strathmore	0.3	0.3*	0.3*	5.1	11.7	3.5
Bighorn	0.9*	0.9	n/a	n/a	n/a	n/a
Foothills	0.2	0.2*	3.5	3.5*	3.5*	2.2
Wheatland	0.1	0.1*	0.1*	n/a	n/a	n/a

Source: Calgary Regional Planning Commission, Municipal Censuses.
Notes: Municipal censuses are conducted in June.
** Growth rates were estimated between census years.*

As discussed in last year's report growth rates in 1986-87 and 87-88 were relatively low reflecting the recession which began in 1986. Consequently average growth for the five year period is low and low migration projections are the "best fit" projections for several municipalities.

As shown in Table 1 growth rates increased between 1988-89 and 1989-90 and decreased slightly in 1990-91. Two municipalities which had higher growth rates

in 1990-91 were High River and Strathmore. High River's growth rate increased from 8% to 8.6%, while Strathmore's growth rate more than doubled from 5.1% to 11.7%. The dramatic increase in Strathmore's growth rate may be due to lower house prices in comparison to Calgary and other urban centres in the region and employment opportunities generated by newly developed services such as the high school and recreation complex. Realtors reported that existing homes were selling rapidly in Strathmore in 1990[1]. Census data for 1990 and 1991 indicates that the 35-44 year age group experienced the largest increases and that the 0-14 year age group also experienced significant growth[2].

An interesting observation arising from this review of recent population growth is that relatively healthy annual growth rates occurred despite a national recession. This is because the Calgary and provincial economies performed reasonably well while economies performed less well in other parts of the country[3]. As shown in Table 2, positive net migration appears to have peaked in 1989-90 at 11,882 for the City of Calgary. Provincial sources indicate an increased flow of migrants from Ontario and Saskatchewan to Calgary because of perceived employment opportunities here[4]. However, this flow abated in 1990-91 as the level of net migration decreased to 6,315 for Calgary.

Table 2
Population Change for Calgary, 1986-1991

12 Month Period		Net Migration	Overall Change in Population
April 86 to	April 87	-1,566	6,640
April 87	April 88	1,589	9,833
April 88	April 89	5,269	14,020
April 89	April 90	11,882	* 21,747
April 90	April 91	6,315	15,708

** Includes 917 persons added through annexation effective July 1, 1989.*
Source: City of Calgary, Information Bulletin SS#4, 1991.

An analysis of recent and long-term historical growth suggests that the high migration projections may be unrealistic for some municipalities. Research for the Prospect 1993 report will include a complete review of all the projections and their

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[1] *Strathmore Standard, June 12, 1991, pp.1.*

[2] *Calgary Regional Planning Commission, Census Results, Strathmore, 1990, 1991.*

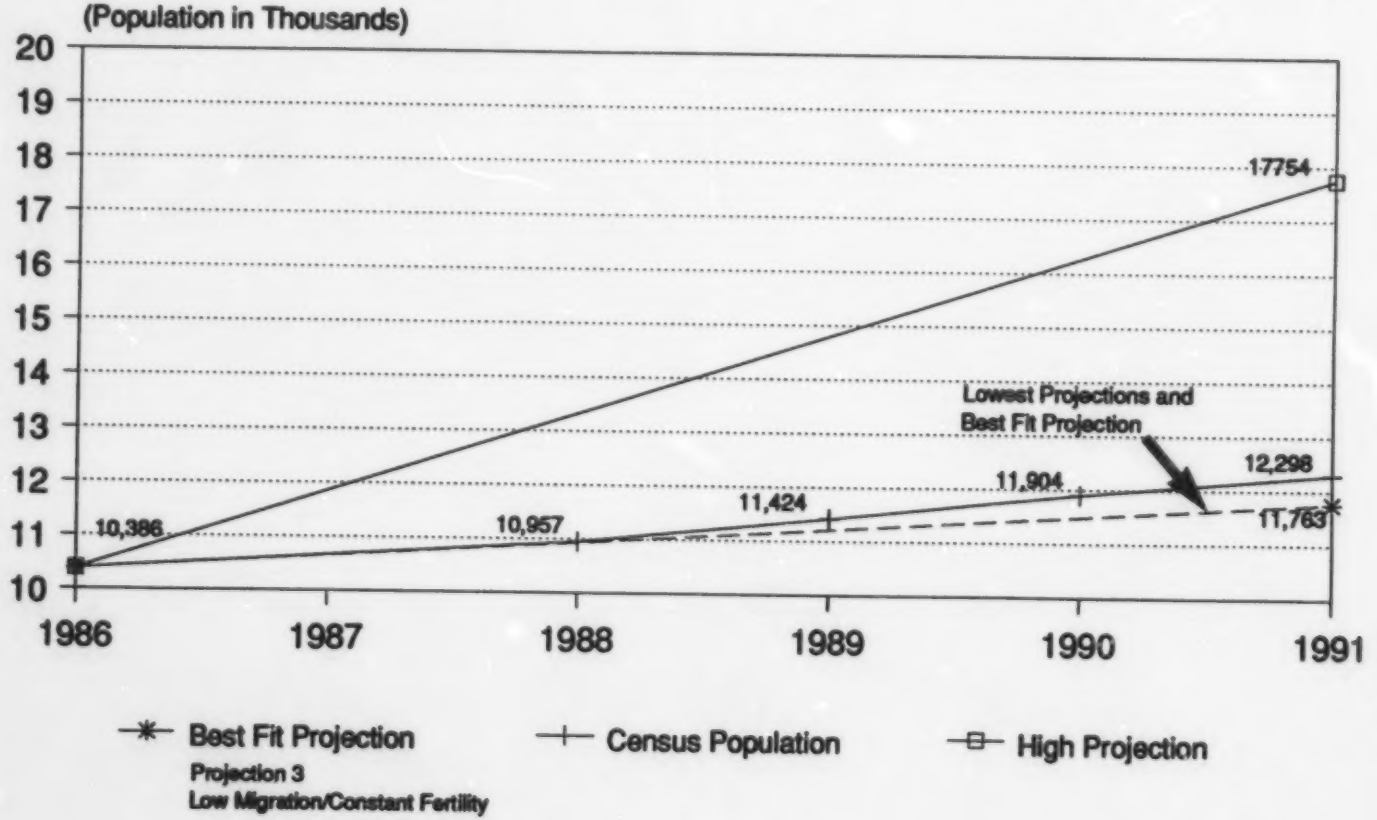
[3] *Calgary Regional Planning Commission, Prospect 90: The Economy of the Calgary Region.*

[4] *City of Calgary, Information Bulletin SS#4, 1991.*

underlying assumptions. The intent of the review is to refine the projections and assumptions based on recent growth trends and demographic statistics.

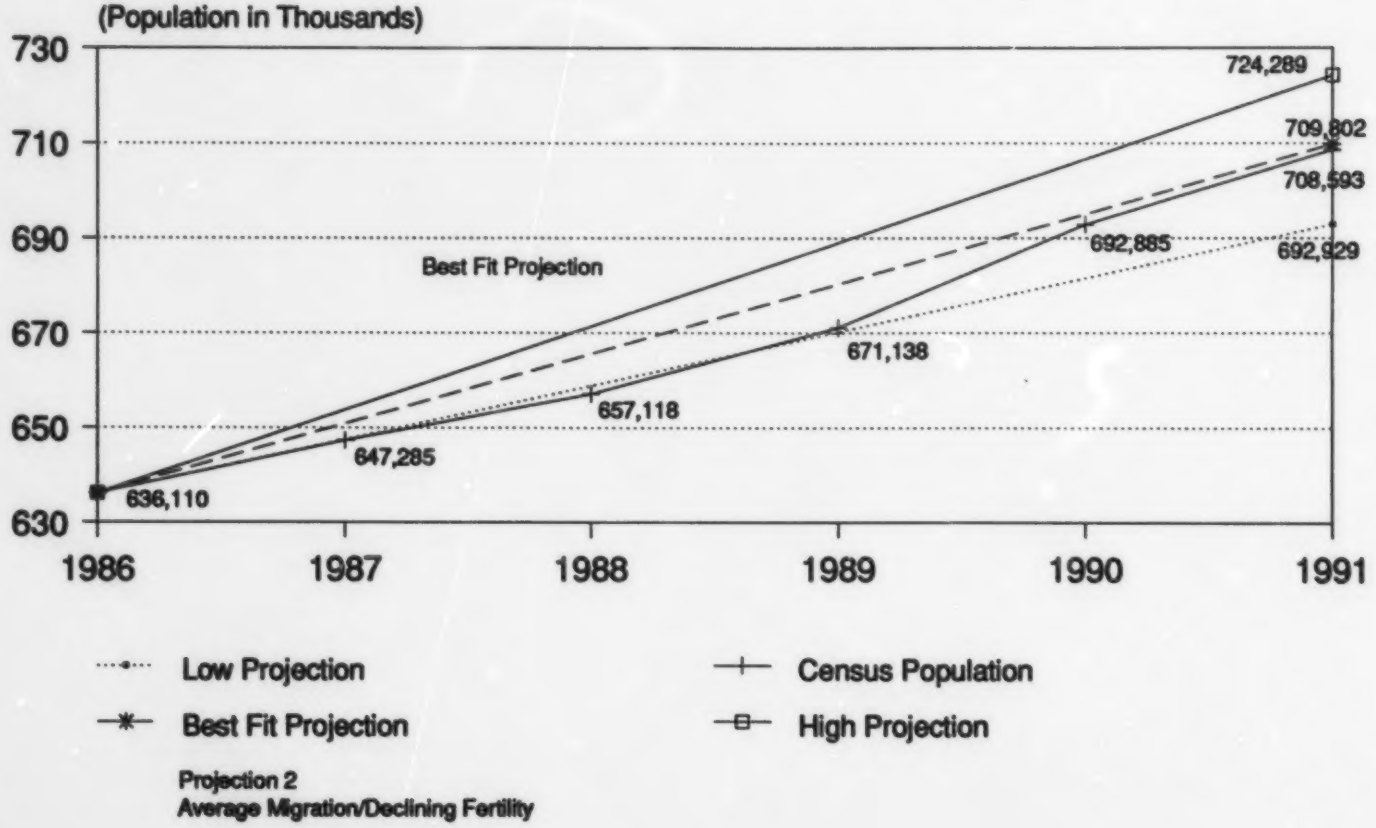
CITY OF AIRDRIE

Actual Growth 1986-1991 vs Projected Growth 1986-1991



CITY OF CALGARY

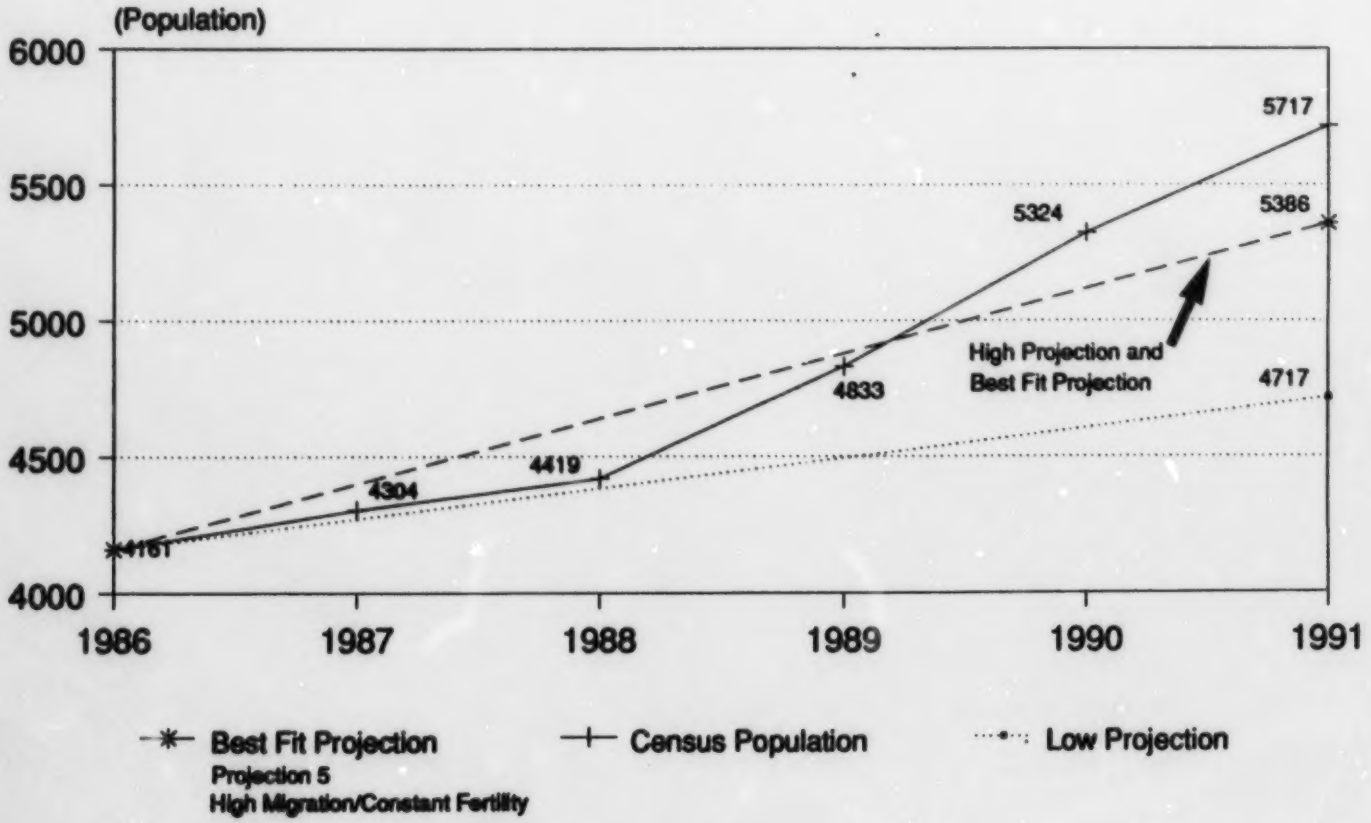
Actual Growth 1986-1991 vs Projected Growth 1986-1991



Projection 2
Average Migration/Declining Fertility

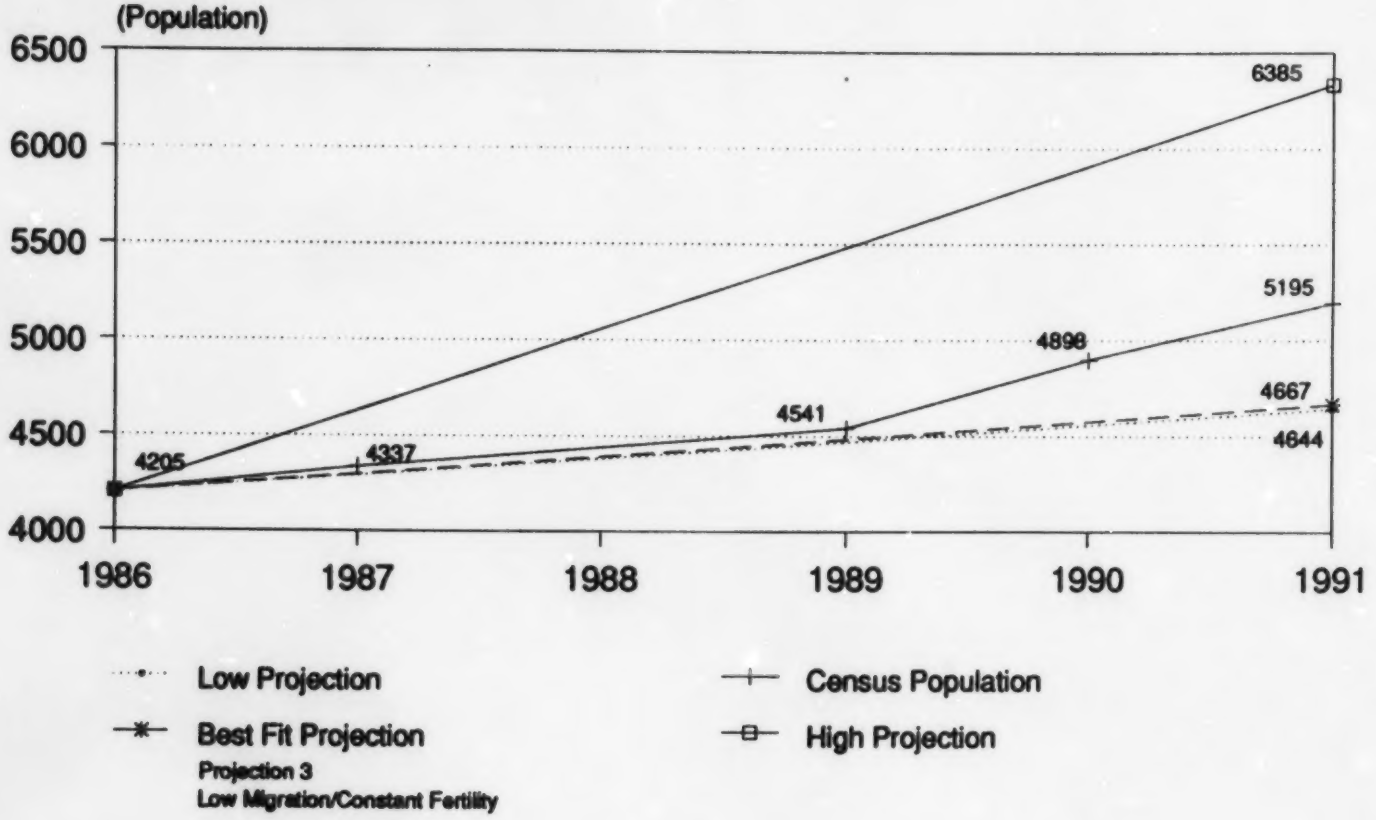
TOWN OF CANMORE

Actual Growth 1986-1991 vs Projected Growth 1986-1991



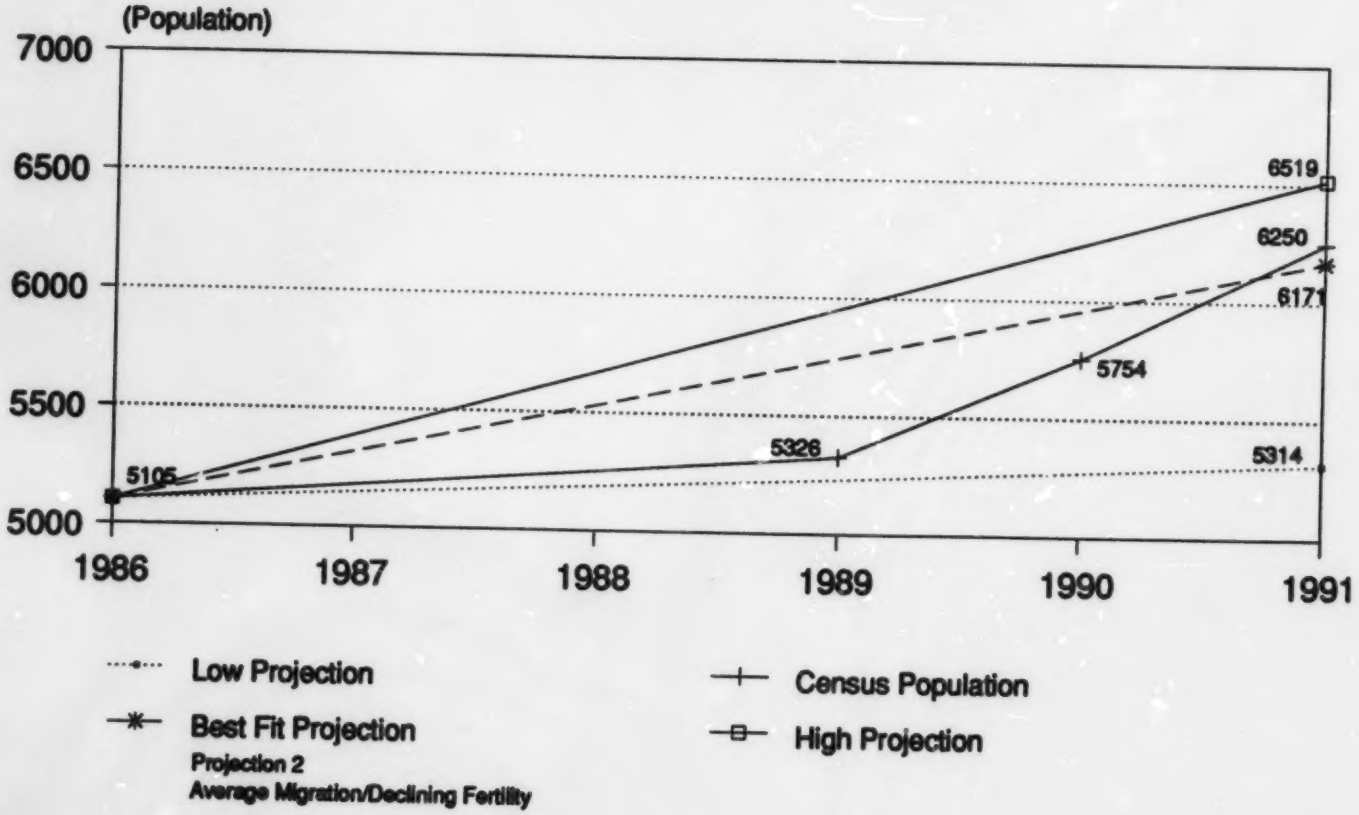
TOWN OF COCHRANE

Actual Growth 1986-1991 vs Projected Growth 1986-1991



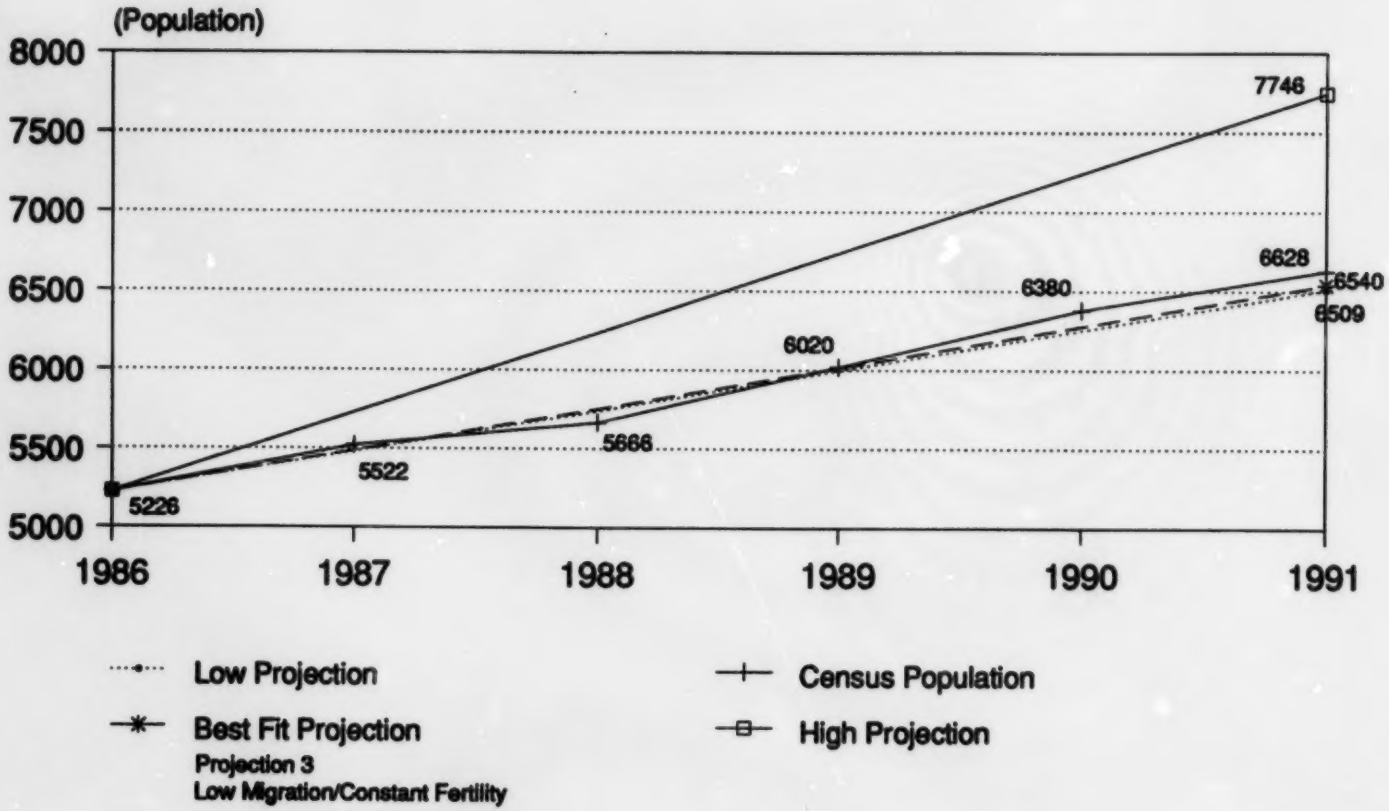
TOWN OF HIGH RIVER

Actual Growth 1986-1991 vs Projected Growth 1986-1991



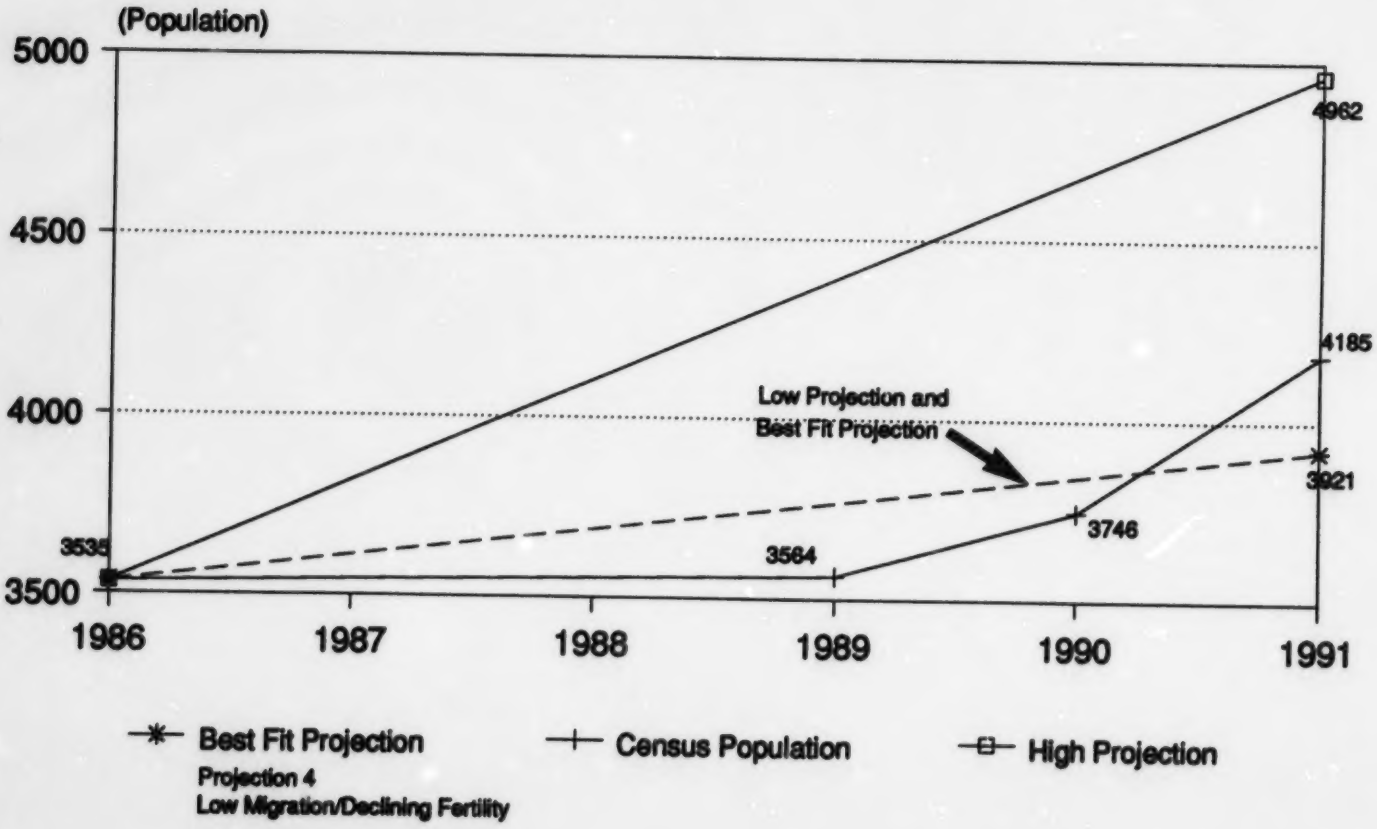
TOWN OF OKOTOKS

Actual Growth 1986-1991 vs Projected Growth 1986-1991



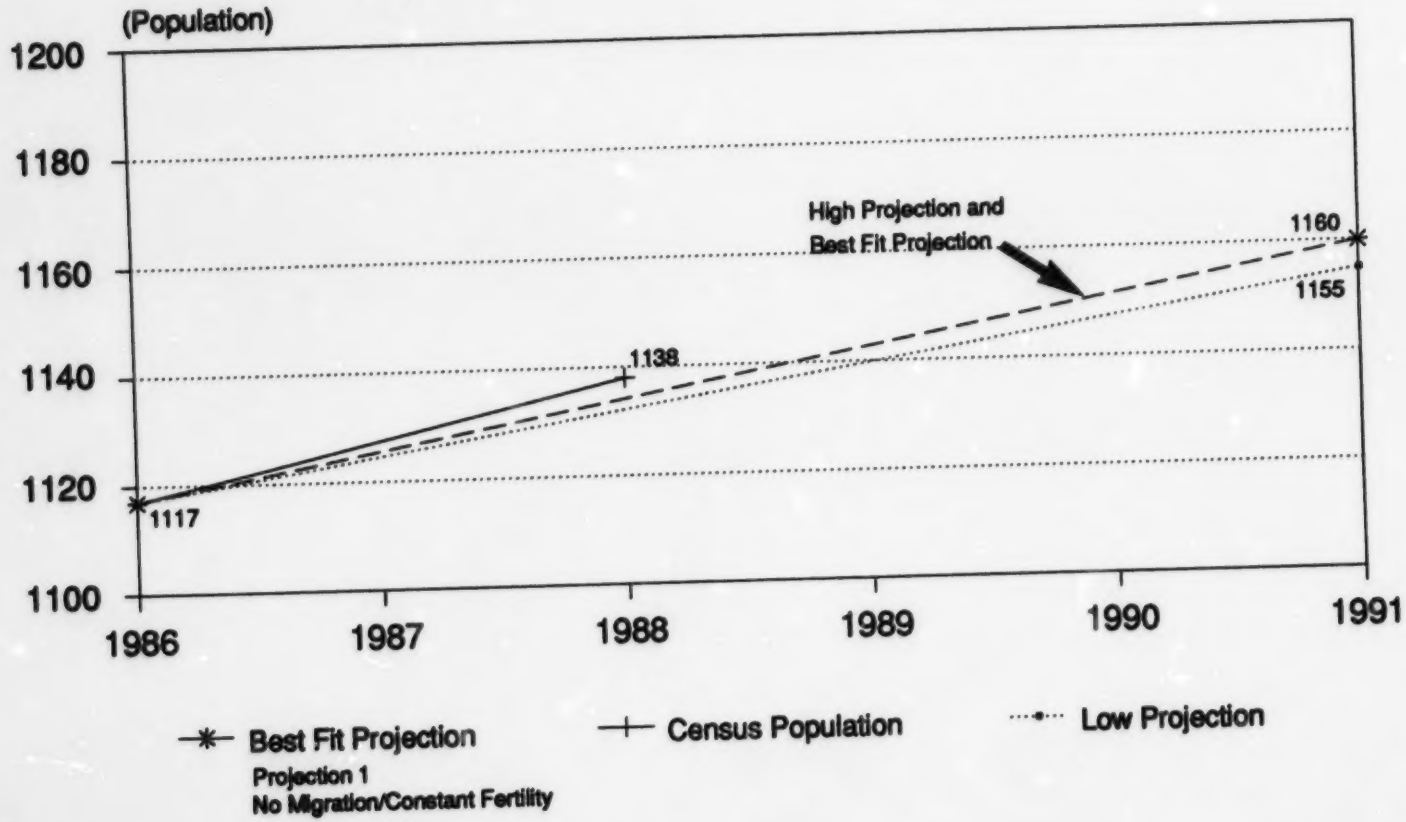
TOWN OF STRATHMORE

Actual Growth 1986-1991 vs Projected Growth 1986-1991



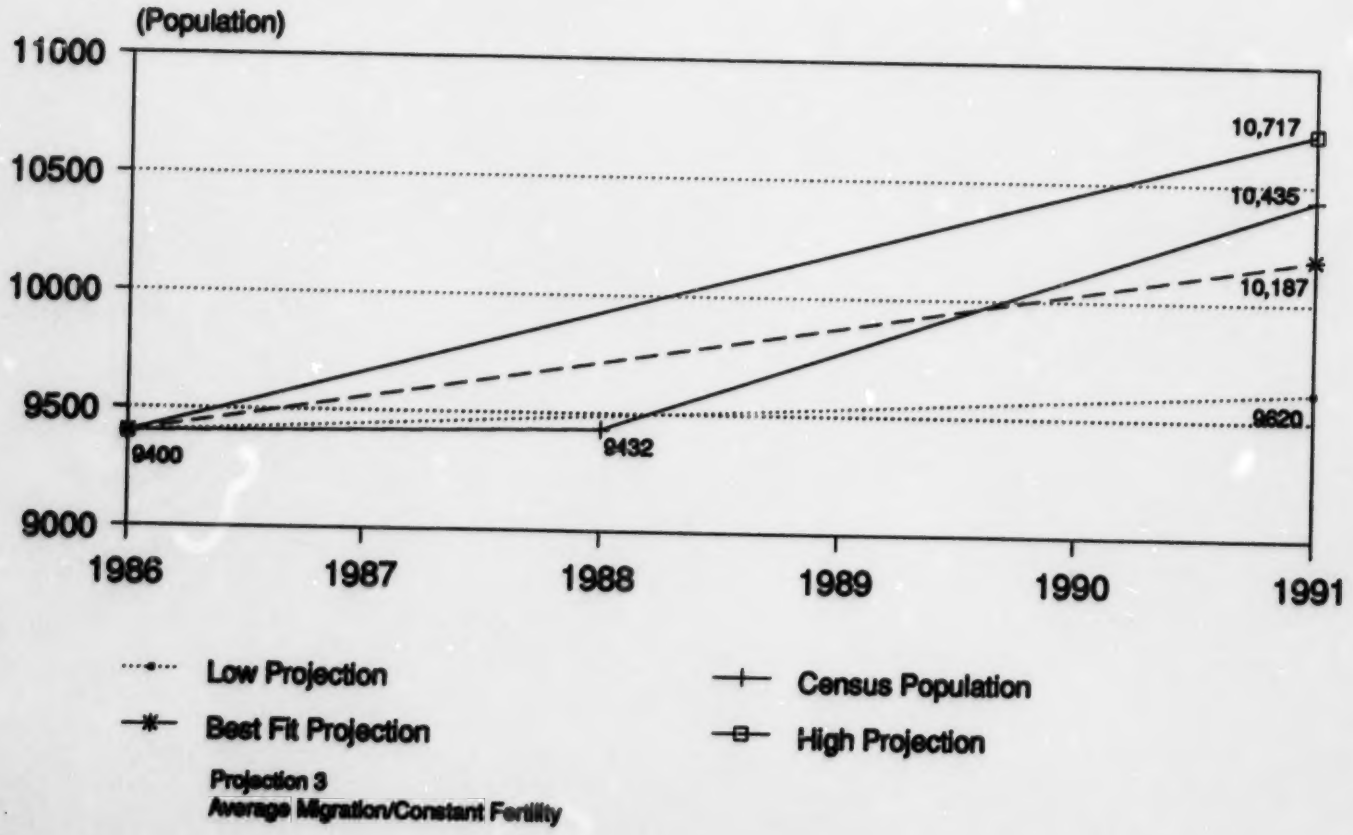
M.D.OF BIGHORN

Actual Growth 1986-1988 vs Projected Growth 1986-1991



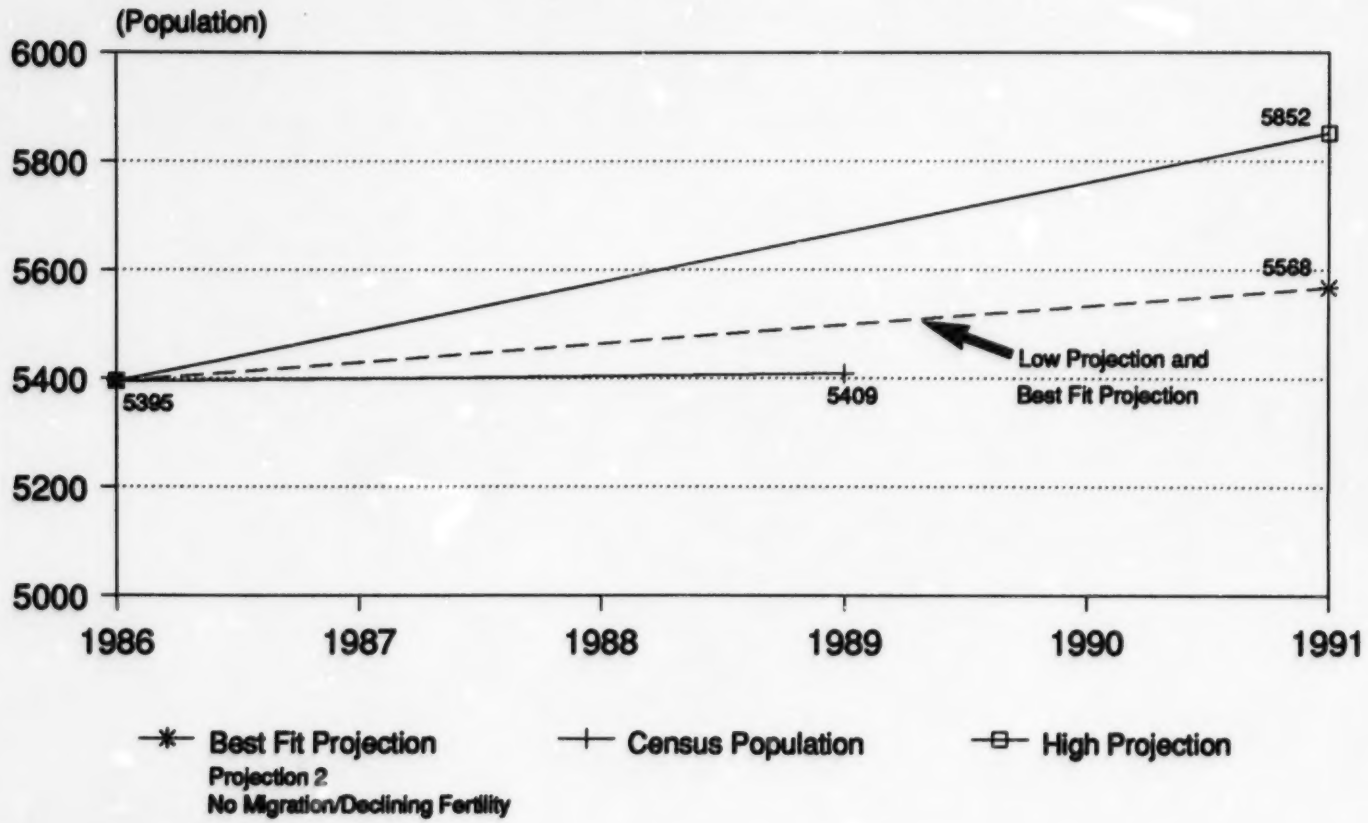
M.D.OF FOOTHILLS

Actual Growth 1986-1991 vs Projected Growth 1986-1991



COUNTY 0F WHEATLAND

Actual Growth 1986-1989 vs Projected Growth 1986-1991



Actual Age Structures Compared to Projected Age Structures

This section compares the projected age structure by municipality in 1991 to the actual age structure. The purpose of this comparison is to determine whether the age distribution of migrants to Alberta accurately reflects the age distribution of migrants to municipalities in the Calgary region.

Since migration statistics were not available the 1989 population projections utilized high, medium, and low migration figures calculated using commonly accepted demographic methods. The figures were calculated as 5-year totals for each community; the age distribution had to be estimated before the data could be projected. Since statistics regarding the age of in-migrants were not available for municipalities in the region an age distribution for in-migrants to Alberta was used as a model for distributing migrants among age groups.

The typical age of migrants to Alberta was estimated by the Alberta Bureau of Statistics for provincial projections completed in 1988. The distribution shown in Figure 1 was based on historical trends over the previous 15 year period and Statistics Canada information derived from taxation files.

It is important to note that the age structure shown in Figure 1 reflects the characteristics of inter-provincial migrants between approximately 1970 and 1986. Firstly, it reflects Canada's age structure which was slightly younger and secondly, since inter-provincial migration is largely motivated by employment opportunities, it reflects changing economic conditions between provinces during this period. During the 1970s Alberta experienced high levels of positive net migration due to employment opportunities offered in the expanding oil and gas sector. However in the 1980s two provincial recessions led to several years of negative net migration for the province.[5]

The age distribution shown in Figure 1 illustrates that young adults between the ages of 20 and 34 comprised the majority of migrants to Alberta over this time period. It is likely that these individuals were migrating to pursue job opportunities in Alberta. The distribution indicates that people over the age of 45 are least likely to migrate to Alberta.

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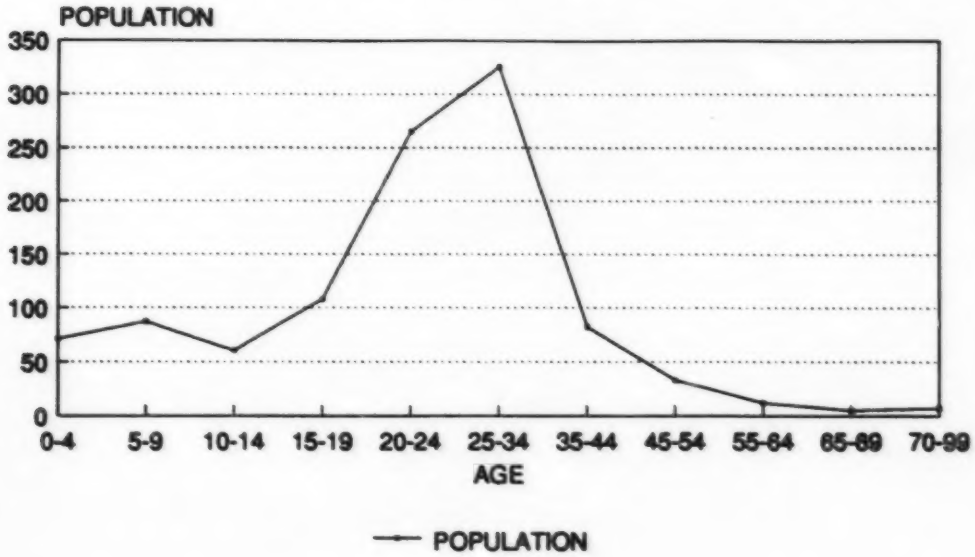
[5] *Alberta Bureau of Statistics, Population Projections Alberta 1987-2016, 1988.*

FIGURE 1
ESTIMATED AGE COMPOSITION PER 1000 MIGRANTS TO ALBERTA



ALBERTA BUREAU OF STATISTICS

This age distribution for migrants to Alberta is consistent with generally accepted theories regarding the relationship between age and mobility. Generally young adults are more likely to migrate to pursue employment and educational opportunities.

The majority of migrants to the province move to either Calgary or Edmonton because of the variety of employment opportunities available in these cities.

Although inter-provincial migration has an influence on population growth in the Calgary region and in particular Calgary's growth rate, it is likely that intra-regional migration trends have a stronger influence on population growth rates in urban and rural municipalities within the Calgary region.

Both inter-provincial and intra-regional migration patterns are motivated by changes in employment opportunities. However, the regional housing market also determines migration patterns within the Calgary region. For example, municipalities such as Airdrie and Cochrane offer additional housing choices for people employed in Calgary. In light of this additional factor, it is reasonable to expect that migrants to small urban and rural municipalities may differ from migrants to Alberta and Calgary.

A comparison between the projected and actual age structure in 1991 provides evidence regarding the age of migrants within the Calgary region.

It is important to accurately estimate the age of migrants because the population age structure influences fertility rates which in turn influences the overall population growth rate. For example, if a large number of 20-40 year olds are migrating to a community the crude birth rate will be higher because women are more likely to bear children between these ages. The projected age structure also has implications for projected school board expenditures and municipal expenditures on recreation and social services.

For this comparison the "best fit" projections from the previous section of this report are used. It is important to note that the "best fit" projections do not coincide exactly with the actual total population. In most cases they represent either a lower or higher total population, which in turn is reflected in the number of individuals in each age category. Secondly, the best fit projections result from assumptions of either high, medium or low migration. A higher number of migrants will have greater influence on the age structure of the population. Moreover, it was necessary to examine how much influence migration had on the projected age structures in general. In order to isolate the effects of migration the projected age structure of the population was plotted under an assumption of zero migration.

The actual and projected age structures are shown in Figures 2 through 8, along with the age structures resulting from an assumption of zero migration. The variables discussed above render visual comparison of the graphs difficult. In addition, each town's age structure is slightly different making it difficult to reach general conclusions. The relative shapes of the graphs are therefore important. The growth in age groups between 1986 and 1991 was also checked for each municipality to confirm which ones experienced rapid growth. Federal census results for 1986 were compared to municipal results for 1991. This may result in small errors due to rounding of federal census data and different data collection methods. Despite these errors general trends can be detected.

This discussion begins with an analysis of the two municipalities which differ from the others, namely Calgary and Canmore.

Calgary

Although the scale is small and the age categories reduced, Calgary's projected age structure shown in Figure 2 closely matches the actual age structure in 1991. In Calgary's case the "best fit" projection is one that assumes average migration of about 8,000 migrants per year. It can be expected that the age structure of migrants would have a less significant impact on a municipality with a large population base, such as Calgary, in comparison to a municipality with a small population base. Despite this fact, Figure 2 indicates that the provincial age structure for in-migrants is closely approximating the age structure of migrants to Calgary. This is consistent with statistics indicating that the majority of migrants to Alberta end up in either Calgary or Edmonton. The actual and projected figures diverge slightly for the 5-14, 20-24, and 55-64 year age groups. Calgary's pattern of divergence differs from all of the other municipalities in the region. For example, in Calgary's case the 5-14 and 55-64 year age groups are overestimated by 3,434 and 5,584 people respectively, while the 20-24 year age group is underestimated by 3,542 people. In contrast, the 5-14 and 55-64 year age groups are underestimated for many of the other municipalities, while the 20-24 year age group is overestimated for all of the other municipalities.

This contrasting pattern highlights the differences between migrants to large urban centres and migrants to small municipalities, that is, a tendency for single young adults to migrate to large urban centres rather than small urban centres or rural municipalities. Similarly the under projection of 20-24 year olds unique to Calgary, suggests young adults were migrating from smaller municipalities into Calgary. The overestimation of 20-24 year olds

FIGURE 2
ACTUAL AGE STRUCTURE COMPARED TO PROJECTED AGE STRUCTURE - CALGARY 1991

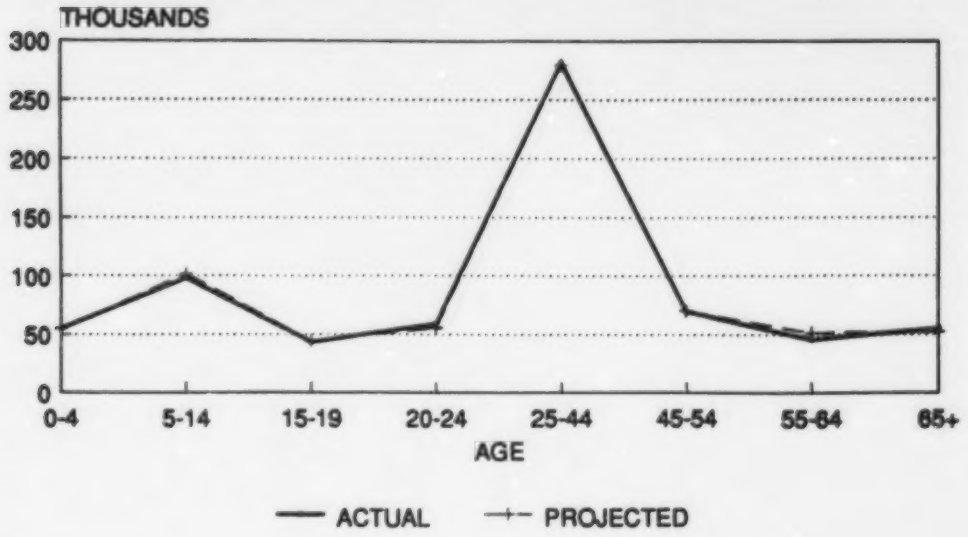


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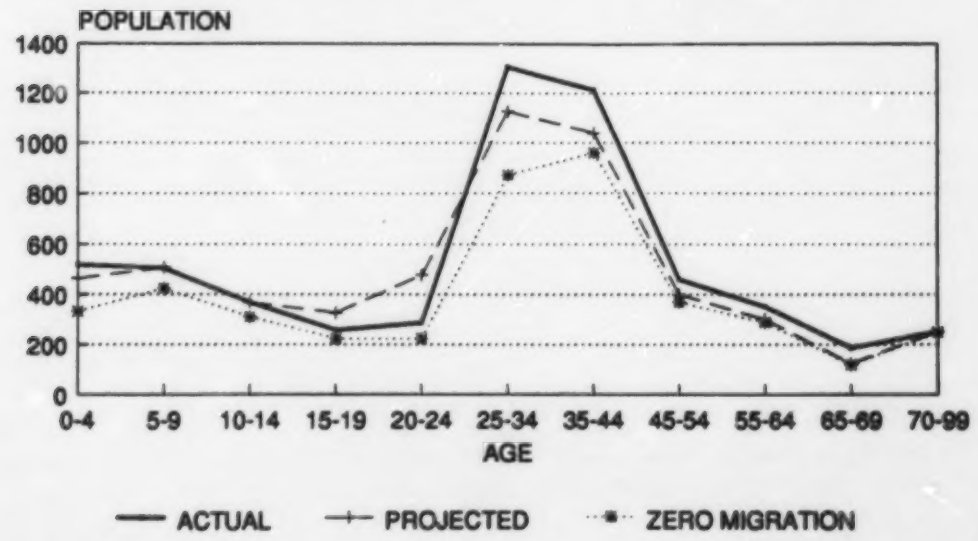
FIGURE 3
ACTUAL AGE STRUCTURE COMPARED TO PROJECTED AGE STRUCTURE - CANMORE 1991



MUNICIPAL CENSUS
PROSPECT 1989

in other municipalities in the Calgary region provides further confirmation of this pattern.

Possible explanations for overestimates of the 55-64 (5,584 individuals) year age group are less obvious. It may indicate that the number of in-migrants in this age group was very low or that out-migrant numbers were higher than expected.

In contrast to the 55-64 age group, the 65+ age group was underestimated by the projection by 5.3% or 2,935 individuals. This may indicate that more seniors were migrating into Calgary from surrounding municipalities for services and housing than predicted by the Alberta model.

The percentage difference between the projected and actual population was less than 3.0% for the remaining age groups indicating the assumed age distribution was reasonably accurate for these age groups.

Canmore

Canmore's age structure is shown in Figure 3. Canmore's age structure is slightly younger than in other municipalities in the Calgary region. Individuals aged 25-34 represent the largest group in Canmore while individuals aged 35-44 represent the largest age group in the remaining municipalities. However, census data for 1986 and 1991 reveal that the 35-44 year age group experienced the largest absolute increase. If this trend continues Canmore's age structure will begin to resemble those of the remainder of municipalities in the Calgary region.

It is important to note that the best fit projection for Canmore (high migration) shown in Figure 3 results in a population which is 5.8% lower than the actual population of 5,717 in 1991. Therefore figures for many of the age groups are under projected.

Canmore's location, in the Rocky Mountains, attracts young migrants who are interested in pursuing summer and winter alpine recreation activities. Figure 3 indicates that 25-34 and 35-44 year old migrants were underestimated in the projections. The graph indicates that the proportion of migrants in the 25-34 and 35-44 year groups requires upward adjustment. Accurate projection of growth in these age groups is important because they may represent households interested in buying homes. A recently completed Economic Development Survey for the Town of Canmore indicates that 34% of the people in town have some university

education while 21.5% have attained a university degree.[6] This indicates that individuals moving to Canmore were older than 20-24 and may have moved after completing post-secondary education elsewhere.

However, as in the remainder of the region's small municipalities, the number of 20-24 year olds was over projected. Census data indicates a loss of seventy-eight 20-24 year olds between 1986 and 1991.

Airdrie, Cochrane, High River, Okotoks, Strathmore, and the M.D. of Foothills

Figures 4 through 9 illustrate projected and actual figures for the remaining municipalities that conducted a 1991 census (Airdrie, Cochrane, High River, Okotoks, Strathmore, and the M.D. of Foothills). Similarities and differences among the municipalities for each age category are discussed in the following paragraphs.

The first significant observation arising from a review of the graphs is for the 20-24 year age group. This age group is overestimated in all of the 1991 projected age structures.

Over-estimation of 20-24 year olds is partially caused by the assumed number of migrants in this age category. However, a comparison between the zero migration projection and the actual population indicates that negative net migration occurred for this age group.

The largest differences are attributable to assumed migration for High River, Okotoks, and Strathmore. The difference is pronounced for High River because the "best fit" projection results from assumptions of average migration. The consistent over projection of 20-24 year olds indicates that the assumed number of migrants for this age category can be reduced for all of the municipalities.

The difference between the zero migration and actual figure indicates that the assumed net migration figure for the 20-24 year olds should be negative for all the municipalities. The largest difference between zero migration and the actual figure occurs for the M.D. of Foothills.

A review of census data for 1986 and 1991 indicates a loss of population between the ages of 20 and 24 for all of the municipalities, except

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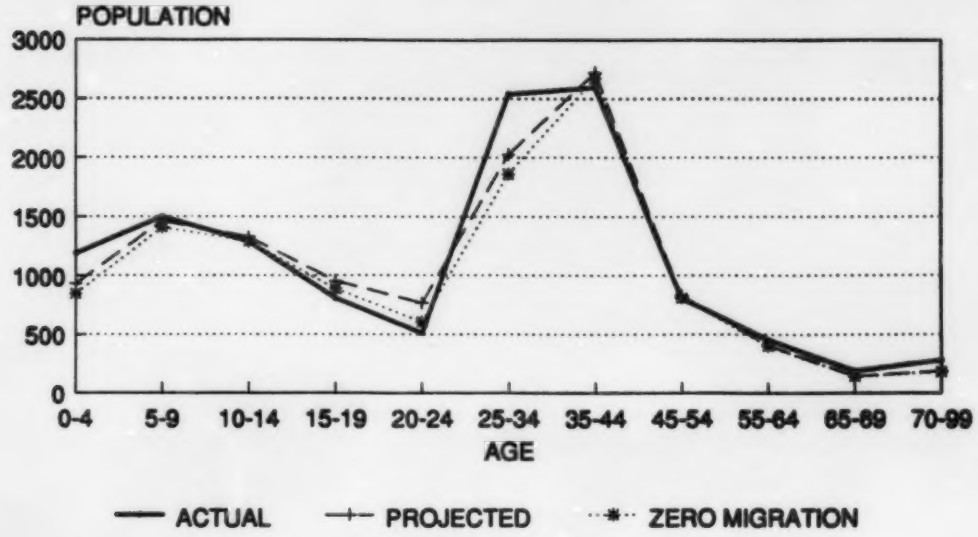
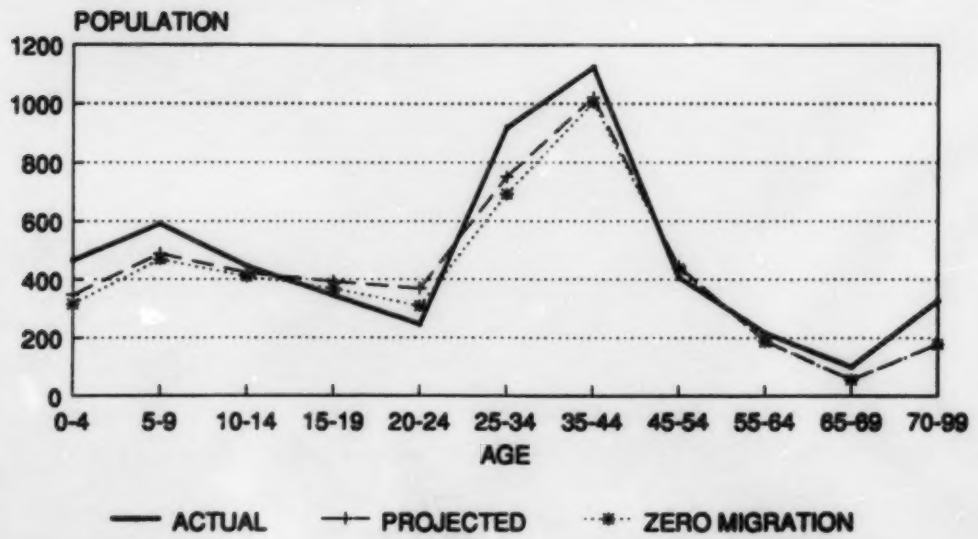
[6] *Canmore Leader, October 22, 1991.*

FIGURE 4
ACTUAL AGE STRUCTURE COMPARED TO PROJECTED AGE STRUCTURE - AIRDRIE 1991



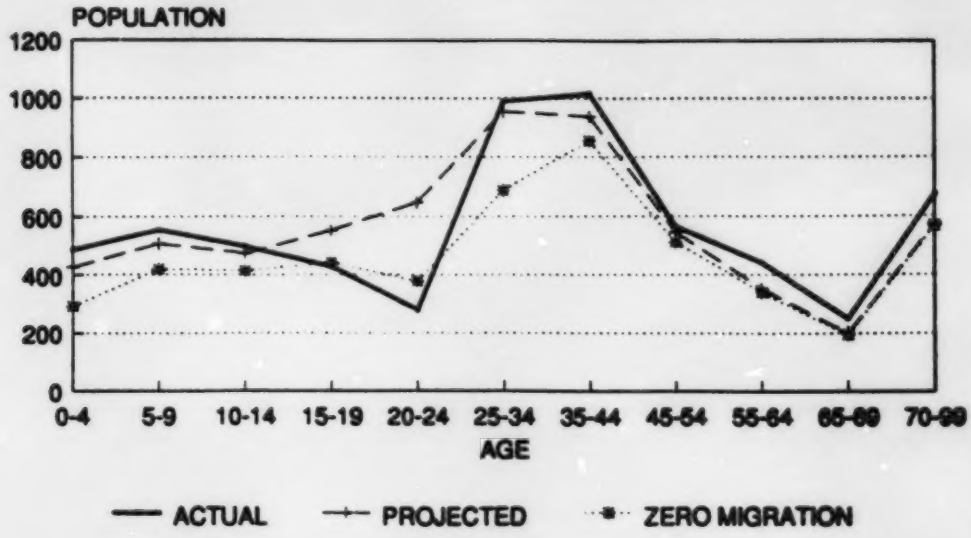
MUNICIPAL CENSUS
PROSPECT 1989

FIGURE 5
ACTUAL AGE STRUCTURE COMPARED TO PROJECTED AGE STRUCTURE - COCHRANE 1991



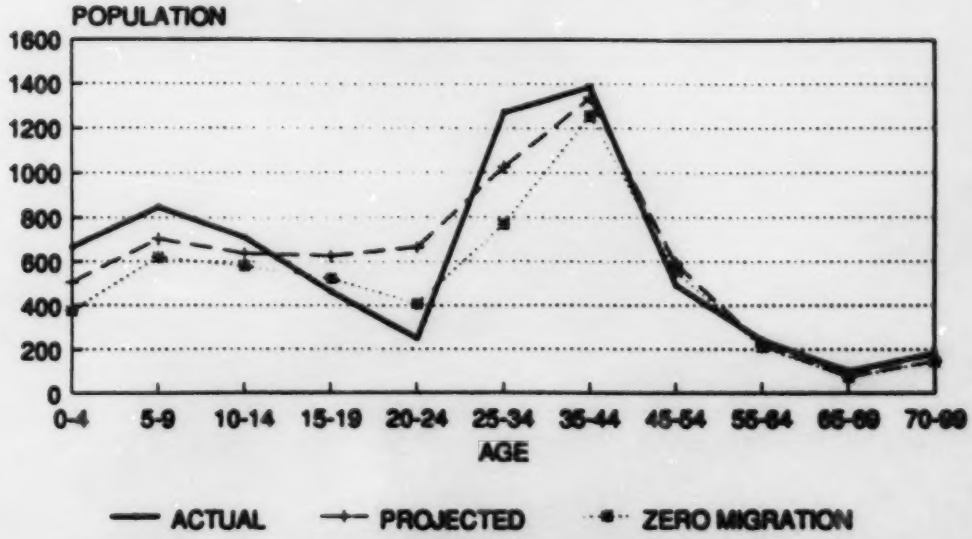
MUNICIPAL CENSUS
PROSPECT 1989

FIGURE 6
ACTUAL AGE STRUCTURE COMPARED TO PROJECTED AGE STRUCTURE-HIGH RIVER 1991



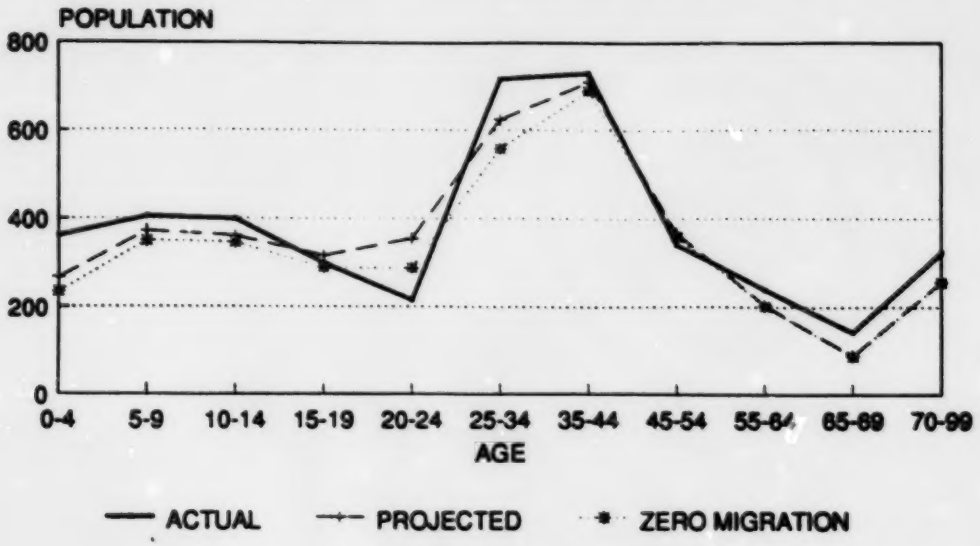
MUNICIPAL CENSUS
PROSPECT 1989

FIGURE 7
ACTUAL AGE STRUCTURE COMPARED TO PROJECTED AGE STRUCTURE - OKOTOKS 1991



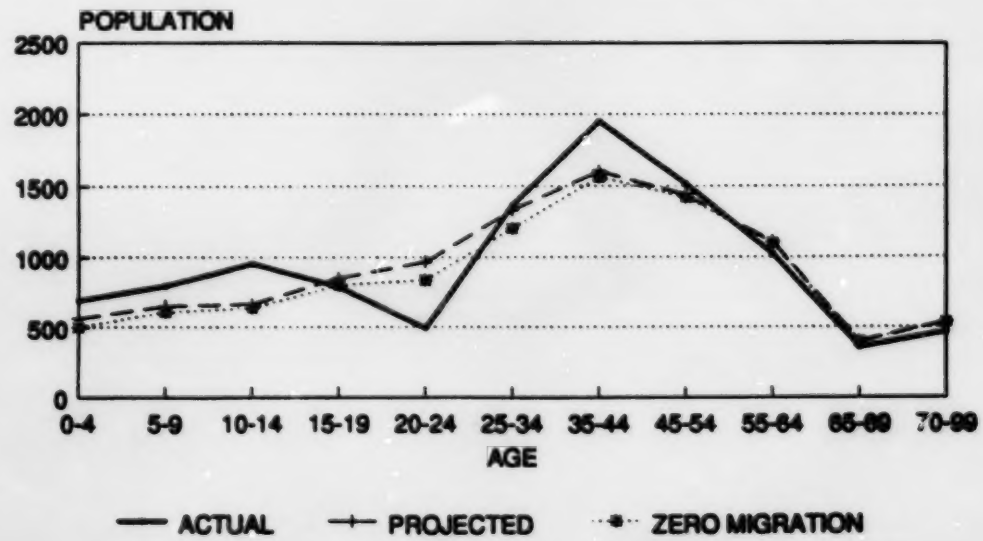
MUNICIPAL CENSUS
PROSPECT 1989

FIGURE 8
ACTUAL AGE STRUCTURE COMPARED TO PROJECTED AGE STRUCTURE-STRATHMORE 1991



MUNICIPAL CENSUS
PROSPECT 1989

FIGURE 9
ACTUAL AGE STRUCTURE COMPARED TO PROJECTED AGE STRUCTURE-FOOTHILLS 1991



MUNICIPAL CENSUS
PROSPECT 1989

Strathmore where it remained stable. The largest absolute loss (-101) occurred for the M.D. of Foothills.

Negative net-migration for 20-24 year olds in small urban municipalities and the M.D. of Foothills can be attributed to two factors. Individuals in this age group usually pursue post-secondary education or their first permanent job and Calgary offers a large variety of opportunities for young adults. As previously mentioned the number of 20-24 year old migrants to Calgary was under projected for 1991. This supports the theory that 20-24 year olds migrate to Calgary from the surrounding urban and rural municipalities.

In contrast to over-estimation of 20-24 year olds, the number of 25-34 year olds was significantly under projected for all of the municipalities except High River and the M.D. of Foothills. A review of census data between 1986 and 1991 indicates that for the majority of municipalities the 25-34 year age group experienced the second highest rate of growth, after the 35-44 year age group.

The "best fit" projections for High River and the M.D. of Foothills resulted from assumptions of average migration, therefore, the migrant population had a greater impact on the number of people in this age group. For these two municipalities little adjustment is required for number of migrants in this age group.

However, in the remaining municipalities of Airdrie, Cochrane, Strathmore, and Okotoks, the number of 25-34 year old migrants was under projected. These municipalities were receiving more in-migrants in this category than projected. Accurate estimation of migrants in this age category is important because they may represent first home buyers seeking lower housing prices in urban centres outside of Calgary. The proportion of in-migrants in this age category should be higher than in the distribution for Alberta.

The third significant discrepancy between the actual and projected population occurred for the 35-44 year age group. The difference was particularly pronounced for Cochrane, the M.D. of Foothills, and High River.

This suggests that the proportion of 35-44 year olds migrating to these municipalities was greater than represented in the age distribution for migrants to Alberta. As previously mentioned it is likely that 25-34 and

35-44 year old individuals were migrating to centres outside of Calgary to take advantage of lower housing prices.

The M.D. of Foothills may be an exception because the proportion of 35-44 year old individuals is especially high for Foothills. This suggests individuals moving to the M.D. tend to be older than migrants to the other municipalities discussed here. This is probably motivated by a desire for a second or more expensive home in a rural setting.

A review of census data for 1986 and 1991 indicates that the 35-44 year age group experienced the largest absolute increases in all of the municipalities. In the M.D. of Foothills the 45-54 year age group experienced the second largest absolute increase confirming the observation that older individuals tend to migrate to Foothills. Recent statistics indicate significant building activity for the retirement market in the M.D. of Foothills[7].

Two other age categories with significant discrepancies were the 0-4 and 5-9 year age groups. Under projection of these age groups occurs in all of the municipalities. It is especially pronounced for Okotoks, Cochrane, and Foothills. This trend may result from three variables. Firstly it may indicate that more families with children are moving to these municipalities than projected. Secondly the fertility rate may be higher for women in their child bearing years, and thirdly there may be a large proportion of women in their child bearing years. A survey of census data indicates that the 5-9 year age group experienced large absolute increases in all of the municipalities between 1986 and 1991. This represents aging of babies born in 1986 at the peak of the baby boom echo. The term "baby boom echo" is commonly used to describe the children of the baby boom generation.

The projected number of 45-54 year olds was relatively accurate for 1991. This suggests that the age distribution for Alberta migrants reflects the proportion of migrants of this age to municipalities in the region.

For Airdrie, Strathmore, Cochrane, and High River differences occur between the actual and projected figures for the 65+ age groups. This suggests the level of migration is slightly higher than projected for these municipalities. It is important to note that these age groups are relatively small in comparison to the 25-34 and 35-44 year age groups, therefore, just a few additional migrants can be considered a significant change. It is

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[7] *Calgary Regional Planning Commission, Prospect: The Elderly in the Calgary Region, 1992.*

likely that Strathmore, Cochrane, and High River are attracting individuals retiring from farms in the surrounding rural areas.

The number of individuals over the age of 70 increased from 165 to 328 between 1986 and 1991 in Cochrane, which represents the largest increase among these municipalities. Airdrie's population in this age group increased by 151 while Strathmore's increased by 114.

Large increases for this age group in Airdrie and Cochrane can be attributed to the completion of Bethany Care centres in these municipalities. The Bethany Care Centre in Airdrie which was completed in 1987 currently provides services for approximately 100 seniors. The Bethany Care Centre in Cochrane which was completed in 1988 also has a capacity of approximately 100 people. These Bethany Care Centres are also attracting a significant number of elderly people with families in Calgary.[8]

[8] *Personal Interview, Bethany Care Centres in Airdrie and Cochrane.*

Conclusion

The monitoring section indicated little change in the "best fit" projection from the 1991 report.

Calgary's projection was adjusted so that actual growth would fall within the range of the projections. The "best fit" projection now results from an assumption of average migration. Low to average migration projections best represent growth in the majority of municipalities, with the exception of Canmore. Canmore's best fit projection results from an assumption of high migration. Growth rates for municipalities within the region are relatively healthy despite a national economic recession.

Federal census data to be released in 1992 will provide a complete set of data for reviewing and revising the projections where required.

The comparisons in the foregoing section provided important insights regarding the age distribution of migrants to urban and rural municipalities in the Calgary region. Firstly, the assumed age distribution for Alberta in-migrants reflects the age distribution of migrants to Calgary fairly accurately. The projected and actual figures diverge only slightly for the 5-14, 20-24, and 55-64 year age groups. The 5-14 and 55-64 year age groups are overestimated while the 20-24 year age group is underestimated.

This pattern is opposite to the differences between projected and actual population in municipalities outside of Calgary. This indicates that there are more 20-24 year olds migrating to Calgary than predicted in the Alberta age distribution. Negative net migration for this age group in municipalities surrounding Calgary suggests that 20-24 year olds are moving into Calgary from the surrounding areas to pursue jobs and education.

Canmore's age structure was slightly younger than was generally the case in small urban centres in the Calgary region. Individuals aged 25-34 represented the largest age group in 1991. These trends indicate that between 1986 and 1991 the greatest proportion of migrants to Canmore fell into the 25-34 and 35-44 year age groups.

The most dramatic divergence between the projected and actual population occurred for the 20-24 year age group, in municipalities surrounding Calgary. The proportion of migrants aged 20-24 is significantly lower than the proportion in the age distribution currently used for the projections. Moreover, a comparison to zero migration projections and historical census data indicates that negative net

migration is occurring for this age group in urban and rural municipalities surrounding Calgary.

It is also important to note that the relatively small proportion of 20-24 year olds is similar to the upward shift in age distribution of the country as a whole.

For the review of population projections to be carried out for 1992, the proportion of 20-24 year old migrants will be adjusted to a negative figure for municipalities surrounding Calgary.

The 25-34 and 35-44 year age groups were growing rapidly in all of the municipalities. The 35-44 age group experienced the largest absolute increases and the 25-34 the second largest. This pattern also reflects aging of the nation's population as a whole.

The projected number of 25-34 year olds was low for all of the municipalities except Calgary, High River and the M.D. of Foothills. This reflects the number of migrants of this age seeking housing outside of Calgary. For this reason the proportion of 25 to 34 year old in-migrants will be adjusted upwards for Airdrie, Cochrane, Strathmore and Okotoks in the review of projections to be undertaken in 1992.

Census data indicates that the 35-44 year age group grew the most rapidly in all of the municipalities between 1986 and 1991. Projected numbers in this age group were low for all of the municipalities between 1986 and 1991, especially Cochrane, High River, and the M.D. of Foothills. This confirms that individuals of this age were moving from Calgary to nearby urban municipalities for less expensive housing.

The 45-54 year age group experienced the second largest increase in Foothills indicating a greater proportion of older migrants to this municipal district.

Next year's review will adjust the proportion of migrants in these age categories upwards for these municipalities.

Other adjustments will be required for 0-4 and 5-9 year age groups for some municipalities, namely Okotoks, Cochrane, and Foothills. The 5-9 year age group grew rapidly between 1986 and 1991 and this is not reflected in the current projections. This trend indicates that families with children this age are moving to these municipalities, as would be expected given rapid growth in the 35-44 year age group noted above.

One last significant observation is for older age groups. This growth in the number of individuals over 65 was higher than projected for Airdrie, Cochrane, Strathmore

and High River. This may reflect an ongoing trend or simply construction of seniors housing in these centres between 1986 and 1991. An examination of development trends over the next five to 10 years will provide additional information for adjustments to migration in these categories.

It appears as though population aging is having some effect on the age structure of migrants, especially to urban and rural municipalities surrounding Calgary. The aging baby boom generation and their children (baby boom echo) are causing some net-migration to municipalities surrounding Calgary. In many cases they are motivated by lower housing prices.

In addition, because of population aging the number of 20-24 year old migrants is lower than it was ten years ago suggesting overall downward adjustments for this age group. Also this age group migrates from smaller urban centres and rural municipalities to large urban centres such as Calgary for jobs and education.

Evidence indicates some movement of seniors to small urban centres such as Airdrie, Cochrane, Strathmore and High River. This movement may be partly motivated by recent developments for seniors in these municipalities.

This section has provided valuable insights into migration patterns in the Calgary region. These will be used to provide more accurate projections for age groups in future projections.

Appendix A

Projections Scenarios Used in Prospect '89: Municipal Population Projections

Basis for Projection Scenarios

Six projections have been prepared for each of the larger regional municipalities. Each projection, or "scenario" is based on a unique set of assumptions. The projections are not forecasts of the future but rather results which would be obtained if the assumptions underlying each hold for the entire 25-year period.

The six scenarios and their assumptions are as follows:

Scenario 1
Constant Fertility/Average Migration

(a) **Total Fertility** Rate is assumed to remain constant throughout the projection period at rates prevailing in the region in 1986.

(b) **Net Migration** estimate is based on the average annual net migration attracted by the municipality during the 10-year period from 1976 to 1986 calculated by the residual method.

Scenario 2
Declining Fertility/Average Migration

(a) **Total Fertility** Rate is assumed to decline continuously from the 1985 Canadian rate of 1672 to a rate of 1376 by the year 2011.

(b) **Net Migration** estimate is based on the average annual net migration attracted by the municipality during the 10-year period from 1976 to 1986 calculated by the residual method.

Scenario 3
Constant Fertility/Low Migration

(a) **Total Fertility** Rate is assumed to remain constant throughout the projection period at rates prevailing in the region in 1986.

(b) **Net Migration** estimate is based on the average annual net migration attracted by the municipality during the 5-year period from 1981 to 1986 calculated by the residual method.

Scenario 4
Declining Fertility/Low Migration

(a) **Total Fertility** Rate is assumed to decline continuously from the 1986 Canadian rate of 1672 to a rate of 1376 by the year 2011.

(b) **Net Migration** estimate is based on the average annual net migration attracted by the municipality during the 5-year period from 1981 to 1986 calculated by the residual method.

Scenario 5
Constant Fertility/High Migration

(a) **Total Fertility** Rate is assumed to remain constant throughout the projection period at rates prevailing in the region in 1986.

(b) **Net Migration** estimate is based on the average annual net migration attracted by the municipality during the 5-year period from 1976 to 1981 calculated by the residual method.

Scenario 6
Declining Fertility/High Migration

(a) **Total Fertility** Rate is assumed to decline continuously from the 1986 Canadian rate of 1672 to a rate of 1376 by the year 2011.

(b) **Net Migration** estimate is based on the average annual net migration attracted by the municipality during the 5-year period from 1976 to 1981 calculated by the residual method.

There are some variations from the migration estimates in these scenarios in the cases of the City of Calgary and the four Rural Municipalities. The City has published annual net migration figures for a number of years and these, as opposed to figures calculated by the residual method, have been used in the scenarios applied to the City of Calgary.

For the Municipal Districts of Rocky View and Foothills, the Low Migration Scenarios 3 and 4 are replaced by an assumption of No Migration. This was made necessary by the combined effects of apparently large out-migration between 1982

and 1986 and annexations of population, principally by the City of Calgary. These effects are difficult to sort out and will need to be addressed further in future work.

For the Municipal District of Bighorn, only two scenarios are projected. The scenarios show the effect of either constant or declining fertility rates together with an assumption of no net migration. The District's population has remained stable for a number of years. As well, there is very little privately owned land in the M.D. available for development which could alter the migration picture in the future. There is thus no basis on which to prepare migration estimates.

Population change in the County of Wheatland has also been very gradual. Even during the "boom" years of 1976-1981, net migration was not highly positive. Again, there is very little evidence on which to base migration estimates. Therefore only four scenarios are projected for the County. Two of these contemplate No Migration while the other two use the migration figures which were obtained during the years 1976-1981 as a future High Migration scenario.